

AGGGGAGAGTCTGCCCCACAAGTCTTTTGTGTATATTTCTCACTGAGGCATCTATTTCAGTTTGGGCAGCAGACA
CTGAGCAGAACGTAGCAGCGGTAAGCTTGGTATTTCAATAGCCTGTCCGGCCAGCACTCAGAAGACGGAGGCCA
GGAGAATCATAGCTTCCAGTCAAGCCTCTTCTACAATATAGTCAGTTGGAAGTCAGCCAGCTTAGACAACA
TGGAGAGCCTGTGCCCCGAAAGCCACTGGGTAAGCCCGAATCTCAGTAGCAGAGAGCTGCCCAGGGTGCGTA
CTGC : AAAAAAAAAAACCTCAAACAACAGAAGTAGGGAGGTGTAAATAAAGTGTAGGGGGGTGGAATTTA
AGCTGATGTGGACTTCCAAATAAAGTTACCTTTTAGATACCTATTTAAATCAATAGCATAGACCTGAAAC
TGCTCTATCAGAAAATGTGTCTATTCTGAGGAAGGAGTGCTAACGAGGTTCTGTGAGGGGGCCTCTGGCT
TTGAGAGGGTGATACCATCACATAAGACTCCTAAAAGCACATACTTTTATAAATTCACCATGAGCTTTAAC
ATCTTCTTTGTCAATTTTCGCAGACTGAGCCATGGAGTCTTTTCGATGCTGACACCAATTCAACTGACCTACA
CTCACGGCCTCTGTTTCAACCCCAAGACATTGCCTCCATGGTCATTCTTGGTCTCACTTGTCTATTGGGA
CTGCTAGGCAATGGGCTGGTGCTGTGGGTAGCTGGCGTAAAGATGAAGACGACCGTGAACACAGTCTGGT
TCCTCCATCTCACCTTGCGCGATTTCCTCTGCTGCCTCTCCTTGCCCTTCTCCTTGGCTCACCTGATTCT
CCAAGGACACTGGCCCTATGGCTTGTTCCTGTGCAAACCTATCCCATCCATCATTATTCTCAACATGTTT
GCCAGTGTCTTCTGCTTACTGCCATTAGCCTGGACCGATGTCTGATAGTACATAAGCCAATCTGGTGCC
AGAATCATCGAAACGTGAGAACCGCCTTCGCCATCTGTGGATGTGTCTGGGTGGTAGCCTTTGTGATGTG
TGTGCCCGTATTTTGTATACCGTGATCTGTTCAATTATGGACAATCGCAGTATATGTAGATATAATTTTGAT
TCCTCCAGGTCATATGATTATTGGGACTACGTGTACAACTAAGTCTACCAGAAAGCAATTTCTACTGATA
ACTCCACTGCTCAGCTAACTGGACATATGAATGACAGGTGAGTCTCCTTCTCTGTACAGGCAAGGGATTA
CTTTTGGACAGTTACCACTGCCCTCCAGTCACAGCCATTCCCTAACATCTCCTGAAGACTCATTTCTCTCTA
GATTTCAGCAAACCAACAACCCCATATGGTGGAAGCCTCCTAATGTCTCTCACAGCCGCCGTACCCAGCG
GGTTTTCTGTTGAAGATCGTAAATCCAATACACTGAACGCTGACGCTTTTCTCTCTGCTCACACAGAAT
TTTCCCTACTGCTTCTAGTGGTCATTTATACCCCTATGATTTCCAGGGGGATTATGTTGACCAATTCACG
TATGACAATCATGTGCCGACACCGCTGATGGCAATAACCATCACAAAGGCTGGTGGTGGGCTTCTTGGTG
CGTTTTTTCATCATGGTAAATTTGTTTACAGCCTCATCGTCTTCAGAATGCGAAAAACCAACTTCACCAAGTC
TCGGAACAAAACCTTTTCGGGTGGCTGTGGCTGTGGTCACTGTCTTTTTTATCTGCTGGACTCCATACCAT
CTTGTCGGAGTCTCTGCTATTGATTACTGATCCAGAAAGTTCCTTGGGGGAAGCTGTGATGTCTGGGACC
ACATGTCCATTGCTTTAGCATCTGCCAATAGTTGCTTCAACCCCTTCTCTGTATGCCCTCTTGGGGAAAGA
CTTTAGGAAGAAAGCAAGACAGTCTATAAAGGCATTCTGGAAGCAGCCTTCAGCGAAGAGCTCACGCAC
TCTACCAACTGTACCCAAGACAAAGCCTCTTCAAAAAGAAACAATATGAGTACAGATGTGTGAAGATGTG
GCCCTGGGAACCTAAGCAGAGTTCTCAGGTGAACAGTGTGGATGACATGTGAGCAGGACACTTTAGACA
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TTGTTTCCATCAGTGTTAAGTTTTACCTCATTCTGGCTTAGTCTATTCCCATCCCTGACTACACCATGTGC
AATGAATAAATTTTTTCTATCTGTTTTTACGATTTCTTTTTTTTTTCTTCTTAGCATCATCTAAACTTCTAGTTTG
CATGGAAGGCTGCTCTTATTGTTCTGAATGGAAGATATTTCATTTATTGTACAGTTTTTGTGGTGGTGACAA
GTGATTTTTAAGTGGGGAAAGAGACACAGTAAGAAAAGATCTATGAAAGCAGGGAGTGTGAGTTAGAGT
TTGACAGAAACAGAGTGCCAAATGCCACCCACTAAAAGCAACCTGAGATAATTCAGTGTTTCATGTGAGCA
AGTGAGCAGATACACATAAACACTTTCCCTACTCCTGGAGTGTTTTAGAAGTTGTAGCTTGGAGCTC
(SEQ ID NO:1)

MESFDADTNSTDLHSRPLFQPQDIASMVILGLTCLLGLLGNGLVLWVAGVKMKTTVNTVWFLHLTLADFLCCLSLPFSLAHLILQGHWPYGLFLCKLIPSIILNMFASVFLTTAISLDRCLIVHKPIWCQNHRNVRTAFAICGCVWVVAFVMCVPVFVYRDLFIMDNRSICRYNFDSSRSYDYWDYVYKLSLPESNSTDNSTAQLTGHMNDRSAPSSVQARDYFWTVTTALQSQPFLTSPEDSFSLDSANQQPHYGGKPPNVLTAAVPSGFPVEDRKSNTLNADAFLSAHELFPFTASSGHLYPYDFQGDYVDQFTYDNHVPTPLMAITITRLVVGFLVPFFIMVICYSLIVFRMRKTNFTKSRNKTFRVAVAVVTVFFICWTPYHLVGVLLITDPESSLGEAVMSWDHMSIALASANSFCNPFLYALLGKDFRKKARQSIKGILEAAFSEELTHSTNCTQDKASSKRNNMSTDV (SEQ ID NO:2)

underlined = deleted in targeting construct

[] = sequence flanking Neo insert in targeting construct

AGGGAGAGTCTGCCCACAAGTTTTTGTATATTTTCTCACTGAGGCATCTATTTCAGTTTGG
GCAGCAGACACTGAGCAGAACGTAGCACGGCAATGCTTGGTAGCAATGCCTGTCCGGCCA
GCACTCAGAAGACGGAGGCAGGAGAATCATAGCTTCCAGTCAGCCTCTTCTACAATATAG
TCAGTTGGAAGTCAGCCAGCTTAGACAACATGGAGAGCCTGT [GCCGAAAGCCACTGGGTA
AGCCCGAATCTCAGTAGCAGAGAGCTGCCAGGGTGCGTACTGC : AAAAAAAAAACCTCA
AACAACAGAAGTAGGGAGGTGTAAATAAAGTGTAGGGGGGTGGAATTTAAGCTGATGTG
GACTTCCAAATAAAGTTACCTTTTAGATACCTATTTAAATCAATAGCATAGACCTGAAAC
TGCTATATCAGAAAATGTGTCTATTCTGAGGAAGGAGTGCTAACGAGGTTCTGTGAGGGGG
GCCTCTGGCTTTGAGAGGGTGTACCATCACATAAGACTCCTAAAAGCACATACTTTTATA
AATTCACCATGAGCTTTAACATCTTCTTTGTCAATTTGCGAGACTGAGCCATGGAGTCTTT
CGATGCTGACACCAATTCAACTGACCTACACTCACGGCCTCTGTTTCAACCCCAAGACAT
TG] CCTCCATGGTCATTCTTGGTCTCACTTGTCTATTGGGACTGCTAGGCAATGGGCTGGT
GCTGTGGGTAGCTGGCGTAAAGATGAAGACGACCGTGAACACAGTCTGGTTCCCTCCATCT
CACCTTGGCCGATTTCCTCTGCTGCGCTCTCCTTGCCCTTCTCCTTGGCTCACCTGATTCT
CCAAGGACACTGGCCCTAT [GGCTTGTTCCTGTGCAAACTTATCCCATCCATCATTATTCT
CAACATGTTTGGCAGTGTCTTCCCTGCTTACTGCCATTAGCCTGGACCGATGTCTGATAGT
ACATAAGCCAATCTGGTGCCAGAATCATCGAAACGTGAGAACCGCCTTCGCCATCTGTGG
ATGTGTCTGGGTGGTAGCCTTTGTGATGTGTGTGCCCCGATTTGTATACCGTGATCTGTT
CATTATGGACAATCGCAGTATATGTAGATATAATTTTGATTCCTCCAGGTCATATGATTA
TTGGGACTACGTGT] ACAAACTAAGTCTACCAGAAAGCAATTCCTACTGATAACTCCACTGC
TCAGCTAACTGGACATATGAATGACAGGTGAGCTCCTTCCTCTGTACAGGCAAGGGATTA
CTTTTGGACAGTTACCACTGCCCTCCAGTCACAGCCATTCTTAACATCTCCTGAAGACTC
ATTCTCTCTAGATTACAGCAAACCAACAACCCCATTTATGGTGGAAAGCCTCCTAATGTCTT
CACAGCCGCCGTACCCAGCGGGTTTCCCTGTTGAAGATCGTAAATCCAATACACTGAACGC
TGACGCTTTTCTCTCTGCTCACACAGAACCTTTCCCTACTGCTTCTAGTGGTCATTTATA
CCCCCTGATTTCCAGGGGGATTATGTTGACCAATTCACGTATGACAATCATGTGCCGAC
ACCGCTGATGGCAATAACCATCACAAAGGCTGGTGGTGGGCTTCCTGGTGCCGTTTTTCAT
CATGGTAATTTGTTACAGCCTCATCGTCTTCAGAATGCGAAAAACCAACTTCACCAAGTC
TCGGAACAAAACCTTTTCGGGTGGCTGTGGCTGTGGTCACTGTCTTTTTTATCTGTCTGGAC
TCCATACCATCTTGTGCGAGTCTGCTATTGATTACTGATCCAGAAAGTTCCCTTGGGGGA
AGCTGTGATGTCTGGGACCACATGTCCATTGCTTTAGCATCTGCCAATAGTTGCTTCAA
CCCTTTCCTGTATGCCCTCTTGGGGAAAGACTTTAGGAAGAAAGCAAGACAGTCTATAAA
GGGCATTCTGGAAGCAGCCTTCAGCGAAGAGCTCACGCACTCTACCAACTGTACCAAGA
CAAAGCCTCTTCAAAAAGAAACAATATGAGTACAGATGTGTGAAGATGTGGCCCTGGGAA
CCTAAGCAGAGTTCTCAGGTGAACAGTGATGGATGACATGTGAGCAGGACACTTTAGACA
ATTTGGCGACTCTCAGAGAAAGGTCTCTTATTGACATCAGCATCATTTGAAAACATTTAA
GATGCAAAATTTCAAGCCCCATCCCAGATGTGTTGACTCAGAATCTCTGGCCCATGGGAC
CAGTGTTTTAAACAGGCCTTCTTGTTCATCAGTGTTAAGTTTTACCTCATTTGGCTTAG
TCTATTCCCATCCCTGACTACACCATGTGCAATGAATAACTTTTTTCATCTGTTTTTCAGTA
TTCTTTTTTTTTTCCCTTAGCATCATCTAAACTTCTAGTTTGCATGGAAGGCTGCTCTTATT
GTTCTGAATGGAAGATATTCATTTATTGTACAGTTTTTGTGGTGGTGACAAGTGATTTTTTA
AGTGGGGAAAGAGACACAGTAAGAAAAGATCTATGAAAGCAGGGAGTGTGAGTTAGAGT
TTGACAGAACACAGTGCCAAATGCCACCCACTAAAAGCAACCTGAGATAATTCCAGTGTT
CATGTGAGCAAGTGAGCACAGATACACATAAACACTTTCCTACTCCTGGAGTGTTTTTAGA
AGTTGTAGCTTGGAGCTC

FIG. 2A

Gene Sequence
Structure *

663 bp

Sequence Deleted

859 bp

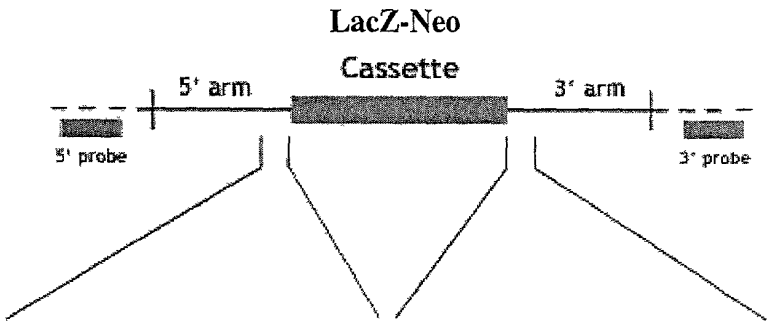
Size of full-length
cDNA: 2658 bp



Targeting Vector* (genomic sequence)

Construct Number: 3036

Arm Length:
5': 3.2 kb
3': 1.8 kb

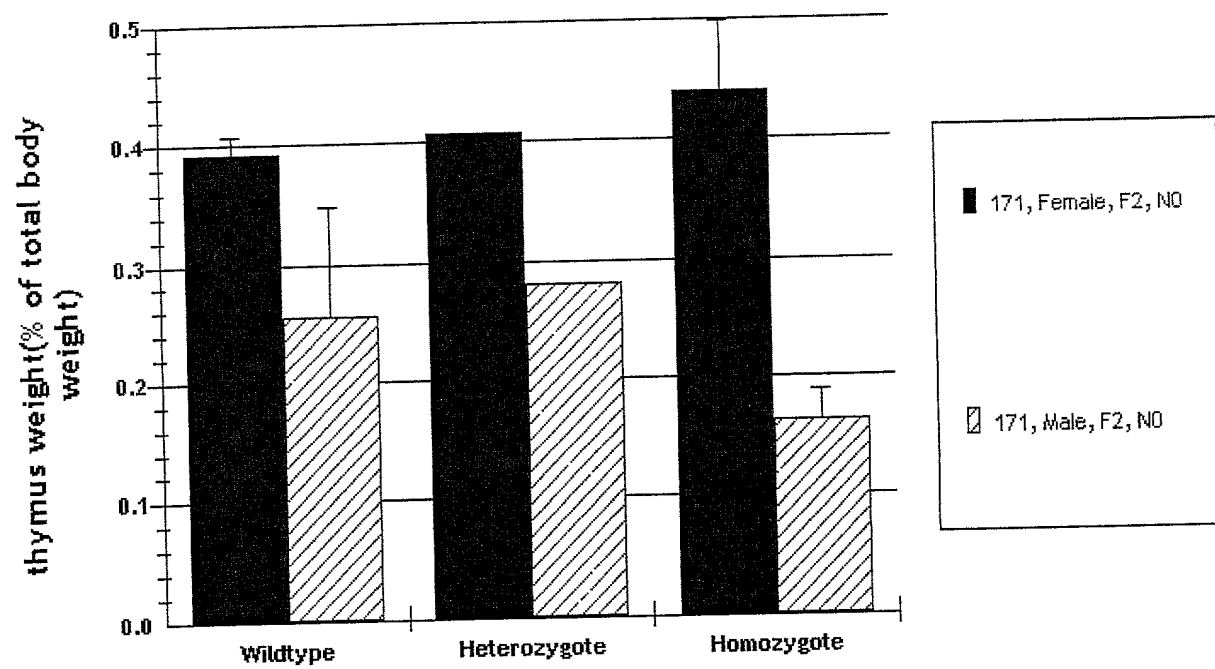


Targeting Vector
Endogenous Locus
Not drawn to scale

<p>5'>CGAGGTTCTGTGAGGGGGGCC TCTGGCTTTGAGAGGGGTACCAT CACATAAGACTCCTAAAAGCACAT ACTTTTATAAATTCACCATGAGCT TTAACATCTTCTTTGTCATTTTCGC AGACTGAGCCATGGAGTCTTTTGA TGCTGACACCAATTCAACTGACCT ACACTCACGGCCTCTGTTTCAACC CCAAGACATTG<3' (SEQ ID NO: 3)</p>	<p>5'>GGCTTGTTCTGTGCAAACTT ATCCCATCCATCATTTATTCTCAAC ATGTTTGCCAGTGTCTTCTCGCTT ACTGCCATTAGCCTGGACCGATGT CTGATAGTACATAAGCCAATCTGG TGCCAGAATCATCGAAACGTGAGA ACCGCCTTCGCCATCTGTGGATGT GTCTGGGTGGTAGCCTTTGTGATG TGTGTGCCCCGT<3' (SEQ ID NO: 4)</p>
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FIG. 2B

necropsy - thymus weight/body weight



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Fig. 3